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wall up a hill, the vertical bricks continue pointing upwards, without changing their course. Double calcined bricks are advantageously applied as vertical bricks. The horizontal courses may be formed in any usual bond or method, due care being taken that the vertical bricks are firmly fixed with mortar. It is here necessary to explain, that, although the distances between the vertical bricks are expressly stated above, yet various deviations or alterations may be made therein, and also in the figure or inclination of the vertical bricks, as circumstances may appear to require; and that, in proportion to the increase or reduction of the pressure, the distance between the vertical bricks may be decreased or increased; which may be extended to the forming of each column with a single row of vertical bricks, or even to the placing of the like vertical bricks apart from each other. These processes are equally applicable, where stones or other hard substances are placed vertically. *Monthly Magazine.*

Specification of the Patent granted to George Dollond, of Saint Paul's Church-yard, in the City of London, Optician; for an improved Method of lighting the Compass, commonly called the Binnacle Compass, used for steering Ships at Sea; and for other Improvements relating to Ships Binnacles. Dated February 19th, 1812.

To all to whom these presents shall come, &c. Now know ye, that in compliance with the said proviso, I the said George Dollond do hereby declare that my said invention is described in manner following; that is to say: It illuminates the compass by prismatic reflection; it applies a lens between the eye of the steersman and the

compass, by which the compass is magnified; it adds springs, &c. to the compass. First, there is a lantern composed of metal, to which is applied a prism: this lantern contains a lamp of the usual construction, and the prism reflects the light upon the face of the compass: the form and position of the lantern and prism can be varied as circumstances may require. Secondly, the lens that magnifies the compass must be of such focal length as not to confine the steersman to a fixed distance. Thirdly, the card of the compass is so constructed as to prevent the vibrations: this is obtained by a bar, or false needle, placed at right angles to the needle. The point on which the card traverses is supported by two cylinders, in the interior of which is a spiral spring, for the purpose of preserving the point and securing the card in its place during any violent motion of the ship; and at each axis of the gimbals is a spiral spring; the use of these springs is to relieve the compass when the ship is greatly agitated.

Observations by the Patentee.

To a maritime country, the security and facility with which every department relating to the navigating of ships is executed becomes a subject worthy of public attention.

The advantages of the binnacle now presented to the public consists in the steadiness and equality of the light, which in the night is obtained by prismatic reflection. The facility and security with which the lantern may be removed to an inclosed place to be trimmed, (for which there is seldom a necessity, it having been proved that the lamp will burn without trimming from twelve to fifteen hours). The lamp being inclosed in a lantern prevents the possibility of the light being

blown out, or the oil falling on the compass.

The lens in the front of the binnacle, which magnifies the compass, is also a very considerable advantage, as it enables the steersman to see the point more distinctly; and the whole of the apparatus being inclosed, the light is prevented from appearing in the night to any person except the steersman, and the weather from affecting the compass.

The improvements relating to the compass are as follows: It is sus-

pending in gimbals as usual, with the addition of a spiral spring to each axis: these springs relieve the compass when any sudden or violent motion of the ship takes place. The compass card is so constructed as to prevent its vibrating, and is suspended on a spiral spring, acting within two cylinders. By this suspension the point is preserved, and the card secured in its place, although the motion may be excessively violent.

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